

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 10/617,204
Attorney Docket No.: Q76412

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A method of transmitting a digital signal over an optical fiber link, said method comprising: ~~the steps of~~ modulating said digital signal onto an optical carrier using frequency shift keying modulation; coupling said frequency modulated optical signal into an optical fiber; ~~at the receive side end of said optical fiber,~~ demodulating the received optical signal to obtain said transmitted digital signal at the receive side end of said optical fiber; wherein for-said frequency shift keying modulation step, ~~has~~ a modulation index $h < 1/2$ is used, and an optical power ~~launched~~ of said modulated optical signal launched into the optical fiber is such that ~~said fiber operates in a non-linear transmission regime to improve transmission characteristics effect occurs in the transmission of the modulated optical signal by the optical fiber, and~~ said modulation index h being defined as maximum frequency separation of said digital signal divided by the bitrate of said digital signal.

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2. (original): A method according to claim 1, wherein said modulation index h is in the range between 1/2 and 1/4.

3. (original): A method according to claim 1, wherein said modulation index h is 1/3.

4. (currently amended): An optical transmission system comprising an optical transmitter, an optical fiber and an optical receiver,

wherein ~~said fiber showing a non-linear transmission effect~~, said optical transmitter being adapted to modulate a digital signal to be transmitted onto an optical carrier using frequency shift keying modulation,

wherein ~~said optical transmitter is adapted to use for~~ said frequency shift keying modulation has a modulation index $h < 1/2$, and

an said optical power transmitter is configured to launch the modulated optical signal launched into the optical fiber with an optical power set is such that ~~said fiber operates in a non-linear transmission regime to improve transmission characteristics~~ effect occurs in the transmission of the modulated optical signal by the optical fiber, and

said modulation index h being defined as maximum frequency separation of said digital signal divided by the bitrate of said digital signal.

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5. (original): An optical transmission system according to claim 4 further comprising an optical dispersion compensation module.

6. (currently amended): An optical transmission system according to claim 4, wherein said receiver comprising an optical filter to demodulate the optical signal.

7. (original): An optical transmission system according to claim 6, wherein said optical filter is a Mach-Zehnder interferometer which two interferometer arms being coupled to corresponding photodiodes which are in turn coupled to a differential electrical receiver.

8. (currently amended): An optical transmitter for an optical transmission system,
wherein said optical transmitter being adapted to modulate a Digital Signal
(DS) to be transmitted over an optical fiber link onto an optical carrier using frequency shift
keying modulation, and

wherein ~~said optical transmitter is adapted to use for~~ said frequency shift keying
modulation has a modulation index $h < 1/2$, and

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an-said optical transmitter is configured to launch the modulated optical signal into the optical fiber with an optical power set power launched such that into the optical fiber is such that said fiber operates in a non-linear transmission regime to improve transmission characteristics effect occurs in the transmission of the modulated optical signal by the optical fiber, and
said modulation index h being defined as maximum frequency separation of said Digital Signal divided by the bitrate of said digital signalDigital Signal.

9. (original): An optical transmitter according to claim 8 comprising a directly modulated laser.